

REMARKS/ARGUMENTS

Claims 1, 5-12, and 36-48 are pending upon entry of this amendment.

Claims 1, 5-9, 11, 36-41, 43, and 45-48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischer (US 5,422,139) in view of Muller et al. (US 6,537,418).

Claims 10, 12, 42, and 44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischer and Muller et al. and further in view of Adomaitis et al. (WO 08487).

Claim Rejections - 35 U.S.C. § 103

As a threshold matter the Examiner is reminded that the,

"rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (MPEP 2142)

In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).

In reviewing the Office action, Applicants note that the Examiner admits that Fischer does not teach that the ratio of the first area to the second area varies as a function of the radial distance from the center of the gas distribution showerhead. (Office action at page 3). To provide for this missing teaching, the Examiner suggests a combination of Muller with Fischer. However, the Examiner is respectfully reminded that in order to establish a *prima facie* case of obviousness there must be:

some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention (MPEP § 2143).

Such teaching or suggestion to make the claimed combination must be found in the prior art, not in Applicants' own disclosure. In re Vaeck, 947 F.2d 488 (Fed.Cir. 1991).

Here, there is absolutely no teaching in Fischer to motivate the modification of Fischer's chamber to include varying the ratio of the gas distribution areas as a function of the radial distance. On the contrary, Fischer states that "a distribution effect of the treatment can be changed by varying the distance d between the pairs of openings at the here planar surface 1, or by a varying of the infeed conditions, or the draw off conditions, such as the feed rate of the infeed, and the feed rate of the drawing off." (Fischer at col. 7, lines 17-22, emphasis added).

Thus, although Fischer discusses several techniques for adjusting the distribution effect, there is no teaching or suggestion to incorporate the elements in the claimed embodiment.

The Examiner is respectfully reminded that to guard against the tempting trap of hindsight, the evidence of a suggestion, teaching, or motivation to combine "must be clear and particular." *In re Dembiczak*, 50 U.S.P.Q.2d, 1614, 1617 (Fed.Cir. 1999) (citation omitted). Because Fischer discusses several techniques for adjusting the distribution effect but fails to teach or suggest the claimed elements, Applicants respectfully submit that the Examiner has simply provided a motivation based on the Applicants' present disclosure.

Fischer appears to use the pair of openings 3, 5 illustrated in FIG. 4 to provide "the local U-flow" in order to change the treatment of the wafer at area 6a opposite the openings and "specifically substantially only within this [6a] area and not at the adjacent areas of the surface 6." (Fischer at col. 7, lines 11-16 and at col. 9, lines 2-6).

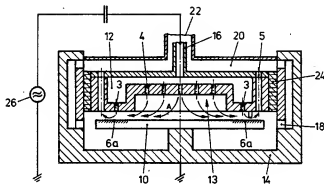


FIG. 4

Although the text of Fischer is unclear, the array 13 of substantially equally distributed similar infed openings 4 results in "a not controllable, substantially radially outwards decreasing distribution of the rate of the fed-in fresh reaction gas and gaseous reaction products at the surface of the substrate." In discussing the operation of the treatment chamber illustrated in FIG. 6, Fischer refers to FIG. 7B as apparently illustrating loss of local control when "the treatment gas which is fed flows over longer surface areas of the substrate and is increasingly consumed." (Fischer at col. 9, lines 46-49 and lines 56-59).



FIG. 7b

FIG. 4 also illustrates peripheral region 6a. In contrast with the central area adjacent the array 13, the rate is controllable in the peripheral region 6a on account of the local U-flow in the peripheral region 6a. (Fischer at col. 8, line 55 - col. 9, line 6). Thus, Fischer appears to provide a uniform array of infeed openings 4 in the center region (with a radially decreasing distribution rate) and pairs of openings in the peripheral region (to provide local U-flow).

The Examiner suggests that the motivation for incorporating the teachings of Muller in Fischer "is to optimize the flow at to accommodate different loads conditions on the wafer to improved the etching process." (Office action at page 4). Applicants would like to remind the Examiner that "if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." (MPEP § 2143.01).

Here, varying the ratio of the gas distribution apertures to the exhaust apertures as a function of radial distance as suggested by the Examiner would change the distribution rates taught by Fischer. Thus, if Fischer were to be modified with teachings from Muller, the modified device incorporating the claimed elements would perform differently than the prior art device. In particular, the distribution rates as a function of radial distance selected by Fischer would be changed. Thus, since the proposed modification would change the principle of operation of the prior art, the combination of Fischer and Muller does not establish a *prima facie* case of obviousness.

Thus, the Applicants assert that since the Examiner has not establish a *prima facie* case of obviousness as required by the MPEP, the pending rejections of independent claims 1 and 36 should be withdrawn. For at least these reasons, claims 1 and 36 are in condition for allowance.

Claims 5-12 and 45-46, which depend from claim 1, are in condition for allowance, for at least the reasons discussed in relation to claim 1, as well as for the additional elements they recite.

Claims 37-44 and 47-48, which depend from claim 36, are in condition for allowance, for at least the reasons discussed in relation to claim 36, as well as for the additional elements they recite.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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